

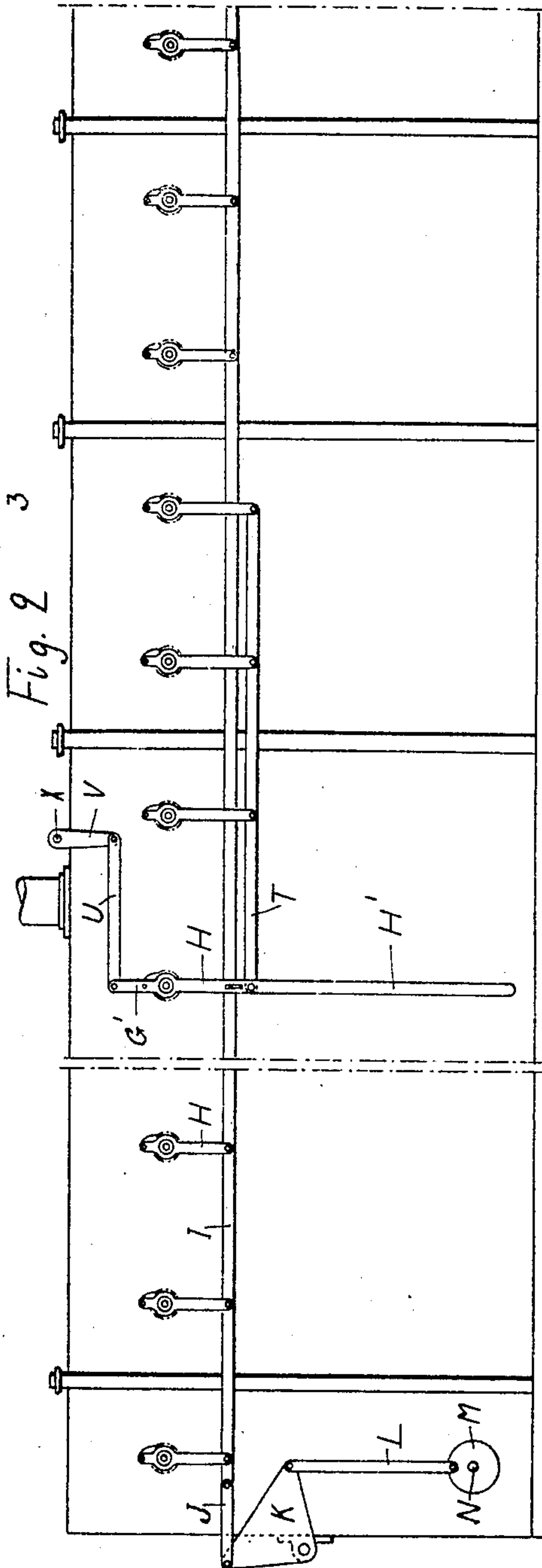
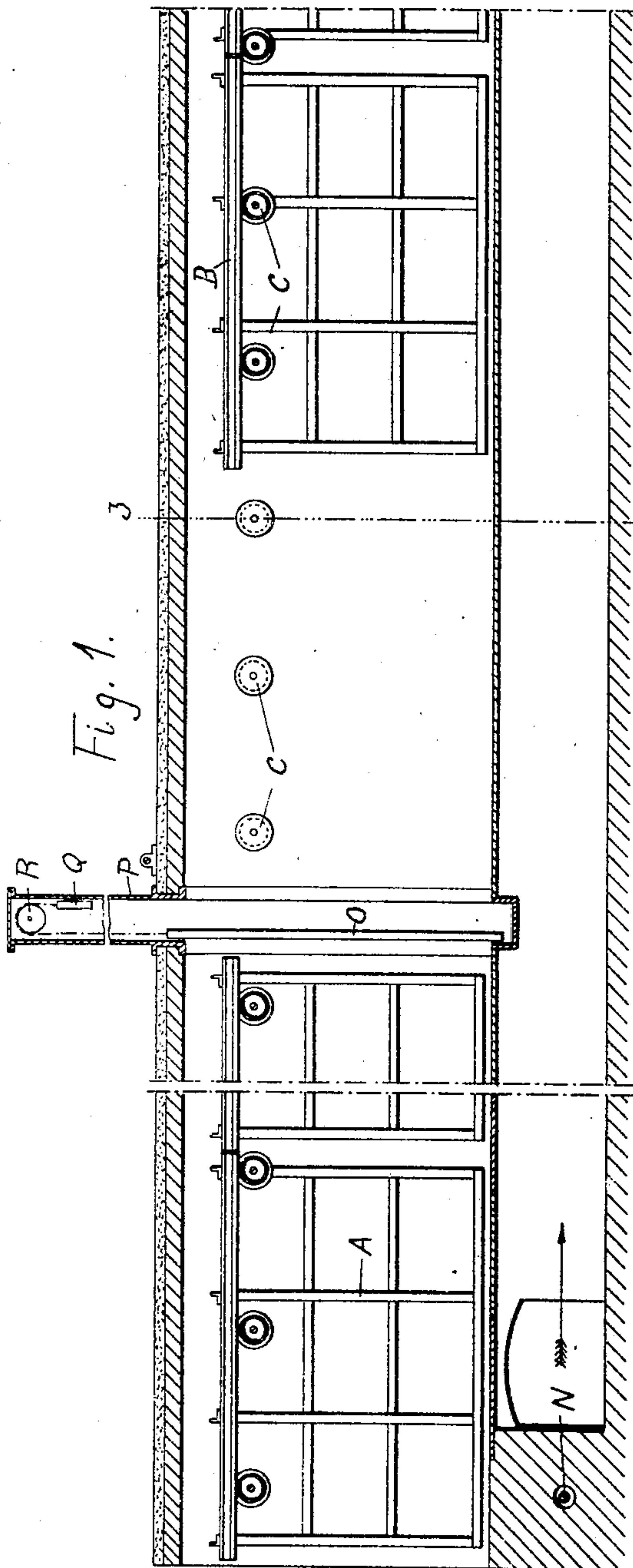
No. 803,531.

PATENTED OCT. 31, 1905.

G. GRÖNDAL.
CHANNEL FURNACE FOR TREATING WOOD.

APPLICATION FILED FEB. 10, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 3.

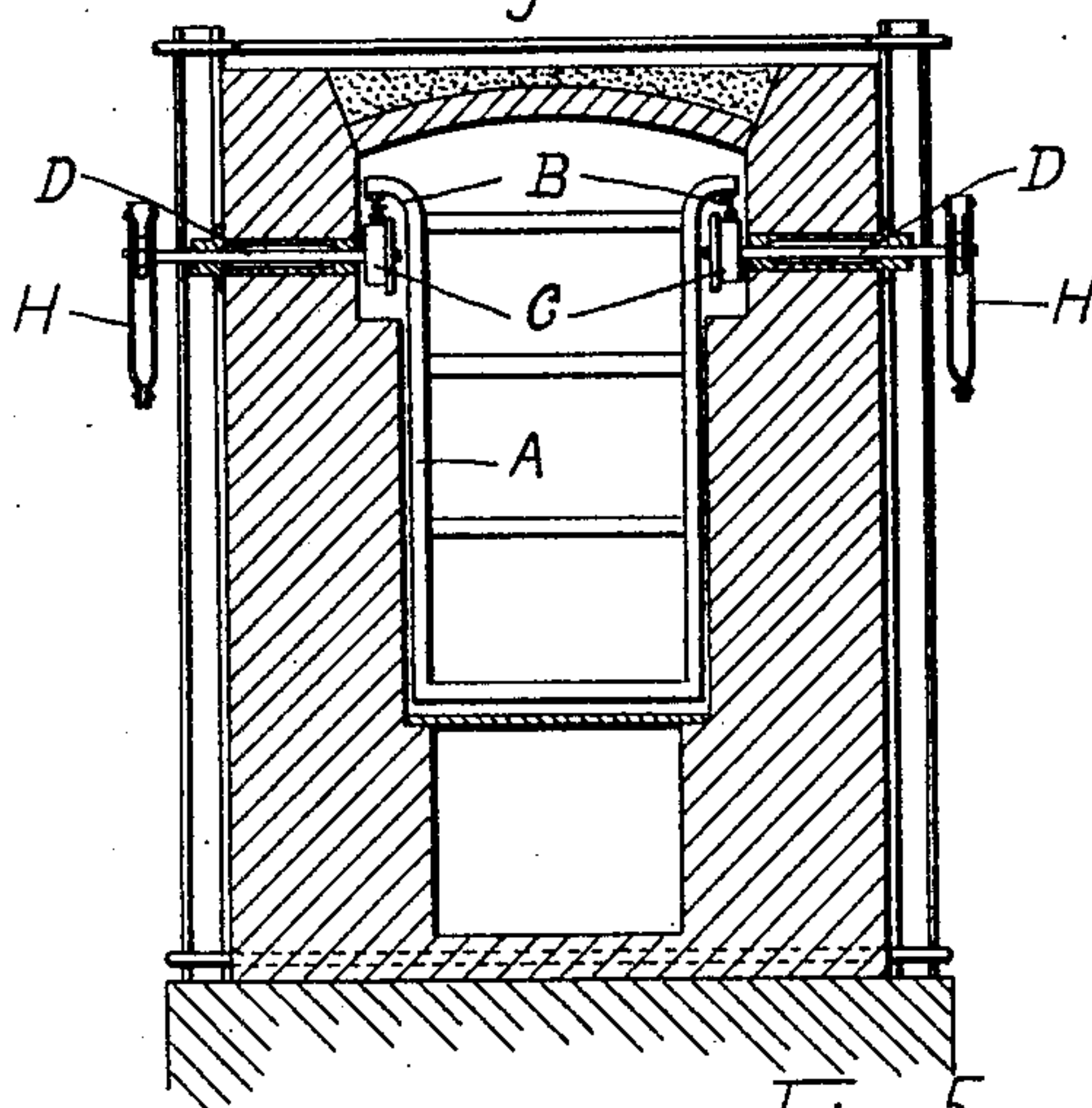


Fig. 5.

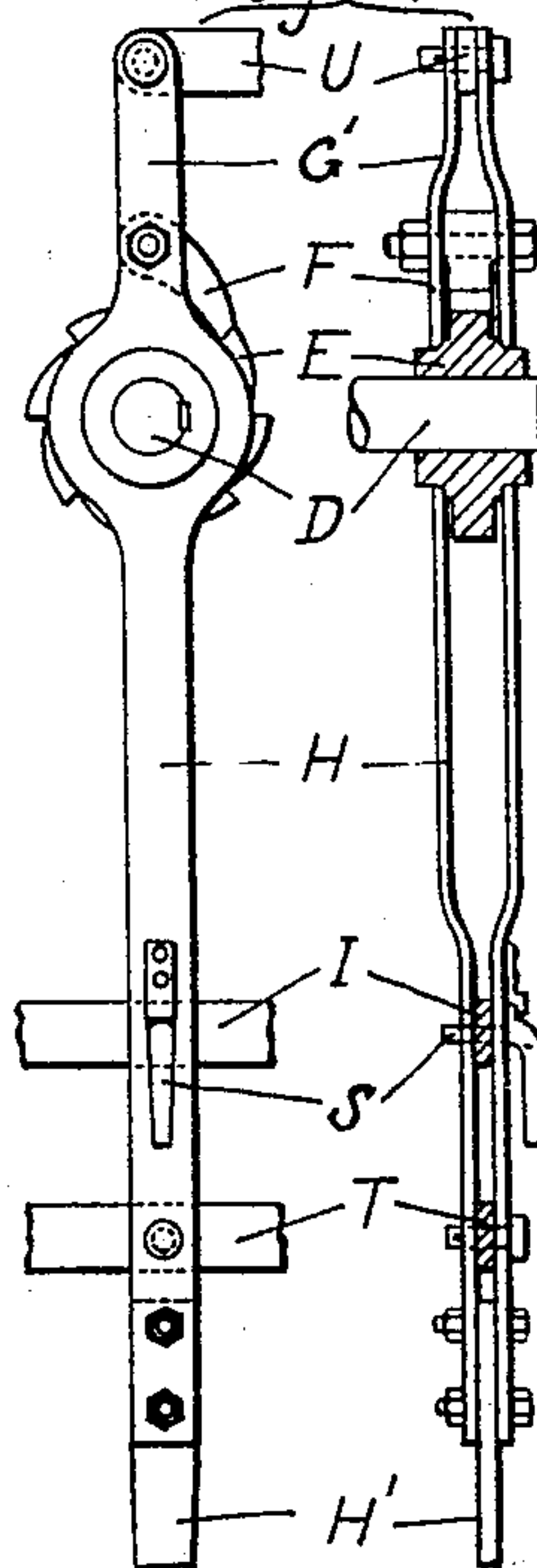
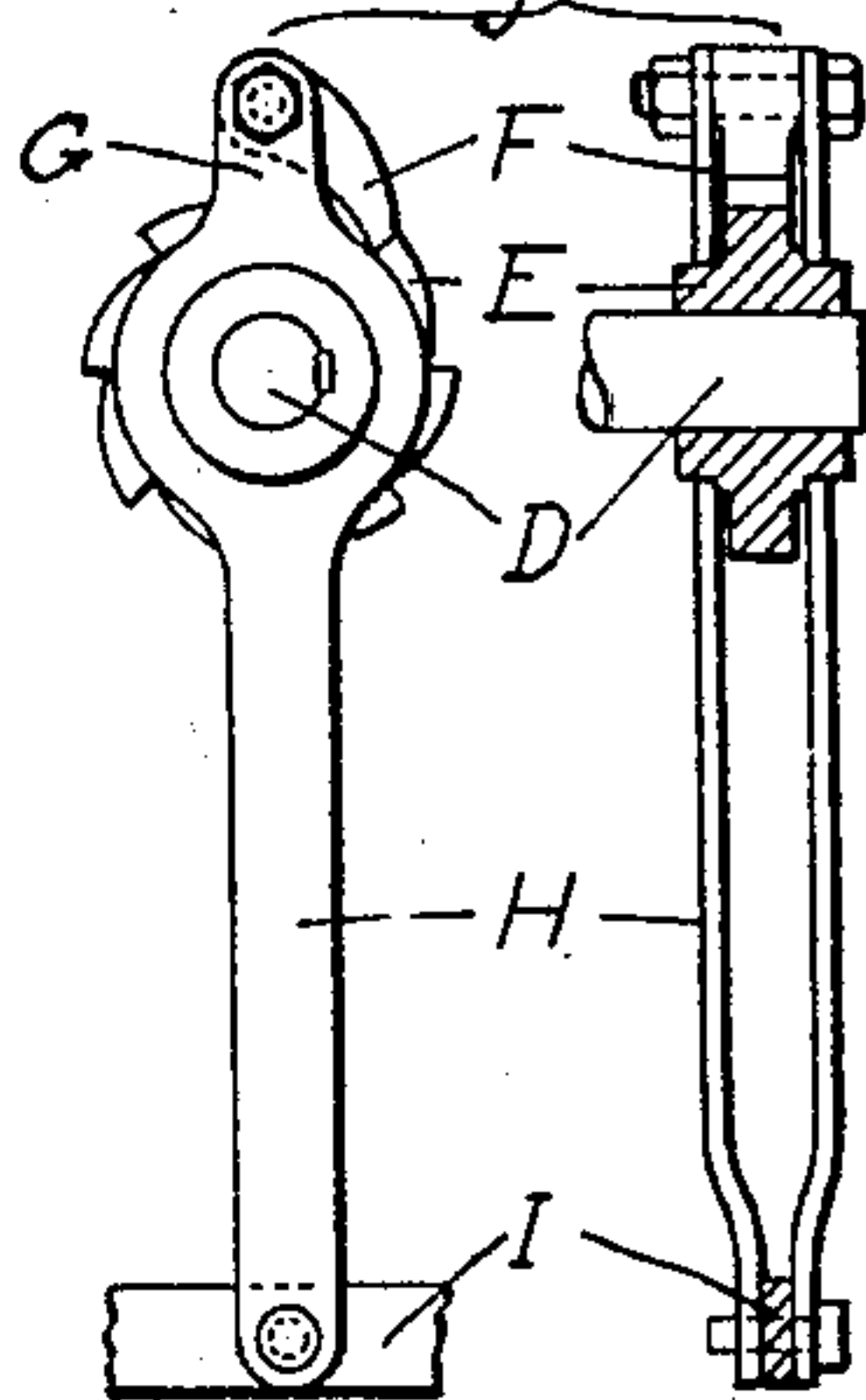


Fig. 4.



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GUSTAF GRÖNDAL, OF DJURSHOLM, SWEDEN.

CHANNEL-FURNACE FOR TREATING WOOD.

No. 803,531.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed February 10, 1905. Serial No. 245,162.

To all whom it may concern:

Be it known that I, GUSTAF GRÖNDAL, a subject of the King of Sweden and Norway, and a resident of Djursholm, Sweden, have invented certain new and useful Improvements in Channel-Furnaces for Treating Wood, (for which I have applied for a patent in Sweden, February 15, 1904, No. 281,) of which the following is a specification.

This invention relates to certain devices for feeding or conveying the baskets or trucks containing the material to be treated in channel-shaped continually-driven drying and charring furnaces or kilns. By means of those devices the trucks or baskets may be fed even if both ends of the channel are closed, and a greater or less number of trucks or baskets may also be fed independently of the other. This latter is important when the channel is divided in several compartments by means of dampers or doors. The first truck on one side of a door must then be capable of being carried over to the other side of the door, the latter being occasionally moved out of the way while the other trucks are continually fed with the slow speed of motion they have normally.

In the accompanying drawings there is shown, by way of example, a form of my devices.

Figure 1 is a vertical longitudinal section of part of a channel-furnace, representing an arrangement of damper or door and some of the trucks. Fig. 2 is an outside view of the same part of the furnace, and Fig. 3 is a cross-section on the line 3 3 of Fig. 1. Figs. 4 and 5 are detail views on a larger scale, partly in side elevation and partly in vertical section.

The furnace represented is intended for charring of laths, and the trucks A are formed as lattice baskets of iron and shaped after the cross-section of the channel. The side walls of those trucks are provided with longitudinal rails B B, having their heads turned downward. Those rails rest on wheels C C, supported in the walls of the furnace and arranged at suitable distances from each other throughout the furnace. The baskets thus resting with their rails on the wheels may obviously be carried from one pair of wheels to the next all along the furnace when the wheels are rotated. The wheels C are keyed to shafts D, mounted in the wall of the furnace and carrying outside of the furnace ratchet-wheels E. Each ratchet-wheel is actuated by a pawl F, pivoted on the upper arm

G of a lever capable of turning freely on the hub of the wheel E. The lower arm H of all those levers is connected with a bar I, extending all along the furnace, to which a reciprocating very slow movement is imparted thereby that the bar is connected by means of a link J to an angle-lever K, receiving a rocking motion by means of the connecting-rod L from the crank-disk M on the shaft N. This shaft N traverses the brickwork to the other side of the furnace, where it carries another crank-disk, from which movement is transferred to the shafts of the wheels C on that side by exactly the same devices as just described.

Movement is transferred from any motor-engine to the shaft N in any suitable manner—for instance, by means of gearing. (Not shown in the drawings.)

In the furnace represented there is provided a door O, capable of being elevated in a box P, arranged above the furnace.

Q is a counterweight connected with the door by means of a rope carried over a pulley R, the shaft of which extends outside the box and is rotated from the outside in any suitable way (not shown) when the door is to be opened or closed. For the purpose of feeding the truck next to the door past it when the truck has arrived close to it, at that moment the row of trucks on the other side of the door has already been moved so far that there is room left for one truck at the end of the row the number of wheels on each side of the door necessary for supporting a truck—in the example shown in the drawings three wheels—are separated from the continually-reciprocating bar I and a swifter motion is imparted to them. For this purpose one of the thereto-belonging levers H only on both sides of the furnace is connected with the bar I by means of a pin S, so that this connection may be disengaged by removing the pin. Those six levers H are connected with each other by a rod T. An extension H' of one of the levers H serves as a handle by means of which there may be imparted to the six wheels C on the one side of the furnace a movement of any required speed. To enable the simultaneous rotation of the six corresponding wheels C on the other side of the furnace, one of the levers G is somewhat longer (G', Fig. 5) and connected by a link U with a crank V on a traverse-shaft X, mounted on the top of the furnace, said shaft being on the other end provided with a similar crank V, connected by means of a link with the lever G'.

If the trucks are conveyed by engine-power to the position indicated in Fig. 1 and a truck is to be fed past the door in the direction of the arrow, the door is opened, the pin S is re-
5 moved, and the lever H' is reciprocated at a greater speed than the movement of the bars I. The truck then slides forward until it reaches the trucks on the other side of the door. The door is then lowered, and the pin S
10 is put in its place, after which the machinery feeds all the trucks in the usual slow manner till the next truck reaches the door, when the same process is repeated.

I claim—

15 1. In channel-furnaces of the kind described, the combination of trucks having rails, with wheels mounted in the walls of the furnace and on which said rails travel, and a driving mechanism outside the furnace to ac-
20 tuate said wheels to feed the trucks along in the furnace.

2. In channel-furnaces of the kind described, the combination of trucks having rails, with wheels mounted in the walls of the
25 furnace and on which said rails travel, a driving mechanism outside the furnace to actuate said wheels to feed the trucks along in the furnace, and means whereby a number of wheels may be disengaged from the driving mechanism and operated independently of the other
30 wheels.

3. In channel-furnaces for treating wood, wheels mounted in the side walls, means for rotating said wheels consisting of a longitudi-
nally-reciprocating rod, side rods projecting
35 therefrom and pivoted on the axles of said wheels, pawls for engaging ratchet-wheels in said axles, and trucks resting on said wheels adapted to be fed along by the rotation of said
40 wheels.

4. In channel-furnaces for treating wood, trucks traveling therein, rotatable wheels mounted in the side walls adapted to support
and feed along said trucks, a removable partition in said channel, and means for control-
45 ling the feeding of said trucks in the proximity thereof.

5. In channel-furnaces for treating wood, trucks traveling therein, rotatable wheels mounted in the side walls adapted to support
50 and feed said trucks along, a vertically-sliding partition in said channel-furnace and independent means to control the feeding of said trucks while passing from one side to the other
55 of said partition.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GUSTAF GRÖNDAL.

Witnesses:

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A. EKDAL.